Claims

1. A method of data compression for colour images characterised in that it incorporates the following steps:

   a) establishing a value for a number of scales into which a wavelet transformation is to be made;

   b) distinguishing areas in an original colour image of relatively higher importance from those of relatively lower importance;

   c) transforming the colour image into a second image in a different colour system having relatively more image information in a first component and relatively less in other components;

   d) sub-sampling the other components to reduce their respective numbers of pixels;

   e) transforming the first component and the sub-sampled components into wavelet coefficients with the said number of scales;

   f) transforming the importance-distinguished areas to correspond to location and number of scales of the wavelet transformation; and

   g) establishing a wavelet coefficient threshold and forming a reduced wavelet image by discarding wavelet coefficients which both correspond to image areas of relatively lower importance and are below the said threshold.

2. A method according to Claim 1 characterised in that it includes the step of producing a reconstituted colour image, this step comprising forming an encoded image by hierarchically encoding the reduced wavelet image, transmitting the encoded image to another location, and implementing respective inverses of the steps of encoding, wavelet transformation, sub-sampling and colour image transformation.

3. A method according to Claim 2 characterised in that the step of forming an encoded image comprises forming a progressive bitstream in which more important image features are encoded earlier, and which includes information on number image rows and columns, number of scales and filter type.

4. A method according to Claim 1 characterised in that the step of distinguishing areas in an original colour image of relatively higher importance from those of relatively lower importance comprises associating differing binary digits therewith.

5.   A method according to Claim 1 characterised in that:

    a)   the step of distinguishing areas of relatively higher importance from those of relatively lower importance comprises specifying a plurality of different levels of relatively lower importance, and

    b)   the step of establishing a wavelet coefficient threshold and forming a reduced wavelet image includes discarding progressively more wavelet coefficients as area importance level diminishes.

6.   A method according to Claim 1 characterised in that the step of transforming the colour image into a second image comprises transformation into luminance, blue chrominance and red chrominance.

7.   A method according to Claim 1 characterised in that the step of sub-sampling reduces pixel number to one quarter that preceding.

8.   A method according to Claim 1 characterised in that the step of wavelet transformation employs a Daubechies-4 filter.

9.   A method according to Claim 1 characterised in that the number of scales is in the range three to six.

10.   A method according to Claim 1 characterised in that the step of establishing a wavelet coefficient threshold comprises forming a cumulative histogram of numbers of pixels not exceeding respective wavelet coefficient values.

11.   A computer program for use in data compression of colour images characterised in that it has instructions for implementing the following steps:

    a)   receiving a value for a number of scales into which a wavelet transformation is to be made;

    b)   receiving an indication of areas in an original colour image having relatively higher importance and those of relatively lower importance;

    c)   transforming the colour image into a second image in a different colour system having relatively more image information in a first component and relatively less in other components;

d) sub-sampling the other components to reduce their respective numbers of pixels;

e) transforming the first component and the sub-sampled components into wavelet coefficients with the said number of scales;·

f) transforming the importance-distinguished areas to correspond to location and number of scales of the wavelet transformation; and

g) establishing a wavelet coefficient threshold and forming a reduced wavelet image by discarding wavelet coefficients which both correspond to image areas of relatively lower importance and are below the said threshold.

12. A computer program according to Claim 11 characterised in that it has instructions for implementing production of a reconstituted colour image by forming an encoded image by hierarchically encoding the reduced wavelet image, transmitting the encoded image to another location, and implementing respective inverses of the steps of encoding, wavelet transformation, sub-sampling and colour image transformation.

13. A computer program according to Claim 11 characterised in that it has instructions for implementing formation of an encoded image by forming a progressive bitstream in which more important image features are encoded earlier, and which includes information on number image rows and columns, number of scales and filter type.

14. A computer program according to Claim 11 characterised in that it has instructions for distinguishing areas in an original colour image of relatively higher importance from those of relatively lower importance by associating differing binary digits therewith.

15. A computer program according to Claim 11 characterised in that it has instructions for implementing transformation of the colour image into a second image by implementing a transformation into luminance, blue chrominance and red chrominance.

16. A computer program according to Claim 11 characterised in that it has instructions for:

a) distinguishing areas of relatively higher importance from those of relatively lower importance by specifying a plurality of different levels of relatively lower importance, and.

b)   establishing a wavelet coefficient threshold and forming a reduced wavelet image by discarding progressively more wavelet coefficients as area importance level diminishes.

17. A computer program according to Claim 11 characterised in that it is arranged to sub-sample by reducing pixel number to one quarter that preceding.

18. A computer program according to Claim 11 characterised in that it is arranged to implement wavelet transformation with a Daubechies-4 filter.

19. A computer program according to Claim 11 characterised in that the number of scales is in the range three to six.

20. A computer program according to Claim 11 characterised in that it is arranged to establish a wavelet coefficient threshold by forming a cumulative histogram of numbers of pixels not exceeding respective wavelet coefficient values.

21. Computer apparatus for use in data compression of colour images characterised in that it is arranged to run the computer program of any one of Claims 11 to 20.